Abstract of the Disclosure:

A memory cell stores data permanently in a memory material that can assume a first, high-resistance state and a second, low-resistance state, that is in a phase-changeable or ovonic material. A heating device is disposed to heat the memory material at different rates to a programming temperature. The memory material either has a high resistance or a low resistance after cooling, depending on the heating rate. The heating device has a switching device and a heating element in immediate vicinity to the memory material. The switching device has a field-effect transistor and a drain region of the field-effect transistor forms the heating element. Alternatively, the heating element includes a diode or a diode chain.

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